Ministry of Health of the Republic of Belarus

"Vitebsk State Order of Friendship of Peoples

medical University"

CHAIR PATHOLOGICAL ANATOMY AND FORENSIC MEDICINE WITH THE COURSE OF THE FACULTY OF ADVANCED TRAINING AND STAFF RETRAINING

Discussed at a department meeting

Protocol No. \_\_ dated \_\_\_\_\_\_\_20\_\_\_

No. \_\_ dated \_\_\_\_\_\_\_20\_\_\_

No. \_\_ dated \_\_\_\_\_\_\_20\_\_\_

No. \_\_ dated \_\_\_\_\_\_\_20\_\_\_

**METHODOLOGICAL GUIDELINES FOR STUDENTS**

to conduct a practical lesson

BY FORENSIC MEDICINE

for specialty 1-79 01 01 General Medicine

5th year students, Faculty of Overseas Students Training

Full-time higher education

**Theme:** Health disorders and death from acute anoxia and due to exposure to certain external physical factors. Mechanical asphyxia. Injuries due to physical agents. Toxicology

**Time:** 5 academic hours (255 min)

Compiled by: Buinov A.A., Denisenko A.G.

Vitebsk, 2024

**Theme:** Health disorders and death from acute oxygen starvation and exposure to physical factors. Mechanical asphyxia. Damage from exposure to physical factors. Forensic toxicology.

**Motivational characteristics of the need to study the topic**

Formation of skills in students and acquisition of knowledge in the amount necessary to perform the duties of a specialist in investigative actions in cases where medical specialists are involved in solving medical issues on behalf of forensic investigative bodies.

Development of expert thinking in the student as a special element of general medical thinking and professional interest in the academic discipline "Forensic Medicine".

**Objectives and tasks of the lesson:**

1. To develop students' skills and acquire scientific knowledge to the extent necessary for the successful performance of specialist duties during investigative actions in cases where medical specialists are involved in resolving medical issues on behalf of judicial and investigative bodies, as provided for by the criminal procedure legislation of the Republic of Belarus.

2. To study the thanatogenesis and morphological signs of various types of mechanical asphyxia, exposure to extreme temperatures, electricity (technical, atmospheric), exposure to various toxic substances.

3. To know the specifics of describing morphological signs in these types of death, drawing up a forensic diagnosis and conclusions; familiarization with the specifics of forensic examination, selection of laboratory research methods and evaluation of their results;

4. To know the specifics of examining the scene of a crime in cases of death from various types of mechanical asphyxia, exposure to extreme temperatures, electricity (technical, atmospheric), exposure to sudden changes in atmospheric pressure, exposure to various toxic substances.

5. Be able to use scientific terminology.

6. Lay the foundation for developing students' clinical thinking skills.

7. Show the importance and necessity of independent cognitive activity, the ability to plan it.

8. Develop the ability to exercise self-control, self-assessment and self-correction of one's activity.

9. Develop the ability to reason logically, clearly, briefly and exhaustively express one's thoughts, cover the presented material comprehensively, applying knowledge of other sciences.

10. Foster in students self-confidence, their strengths and capabilities, as well as the ability to defend their opinions, their own views and beliefs.

11. Awaken the desire to master and qualitatively perform professional skills and abilities, master professional mastery.

**During the study of the lesson, the student must study:**

1. thanatogenesis and morphological signs of various types of mechanical asphyxia, the effects of extreme temperatures, electricity (technical, atmospheric), the effects of various toxic substances.

2. features of describing morphological signs in these types of death, drawing up a forensic diagnosis and conclusions; familiarization with the features of forensic examination, the choice of laboratory research methods and the assessment of their results;

3. features of examining the scene of a crime in the event of death from various types of mechanical asphyxia, the effects of extreme temperatures, electricity (technical, atmospheric), the effects of a sharp change in atmospheric pressure, the effects of various toxic substances.

**learn to:**

1. analyze the data obtained during an autopsy and select the signs indicating a particular type of mechanical asphyxia;

2. evaluate the results of additional studies (histological, determination of plankton in drowning, etc.), compare with the conclusions about the presence of this type of mechanical asphyxia;

3. formulate expert conclusions in writing, where in addition to determining the cause of death - "mechanical asphyxia", the type of mechanical asphyxia is indicated (hanging, strangulation with a loop, strangulation with a hand, etc.) and the morphological signs that make it possible to establish this cause of death are listed: strangulation groove (its characteristics); foreign body in the respiratory tract (where detected, changes in tissue at the location of the foreign body); the nature of abrasions and bruises on the neck, etc., the mechanism of their formation; in addition, list the available external and internal signs of acute death;

4. systematize the knowledge and skills acquired during the training session;

5. apply the acquired knowledge in the practical activities of a doctor using the example of solving situational problems, formulating a diagnosis, and drawing conclusions;

6. plan and carry out independent cognitive activity;

7. carry out self-monitoring, self-assessment, and self-correction of one’s activities.

**to practice:**

1. skills in analyzing preliminary information about the circumstances of death and questions put to the expert;

2. skills in analyzing data obtained during a forensic examination of a corpse and selecting signs indicating a specific cause of death;

3. skills in evaluating the results of additional studies (histological, forensic chemical) and comparing them with the conclusions about the cause of death arising from the results of the examination of the corpse.

**Interdisciplinary and intradisciplinary connections:**

The knowledge, skills, and abilities obtained while studying this topic are necessary for the successful study of the following academic disciplines: "Pathological Anatomy", "Internal Medicine", "Surgery", "Obstetrics-Gynecology", etc.

The knowledge, skills, and abilities obtained while studying this topic will help prepare a specialist who can conduct a differential diagnostic search, provide full assistance to judicial and investigative bodies, and who is able to successfully solve their professional problems.

**THEORETICAL PART:**

Mechanical asphyxia is oxygen starvation that develops as a result of physical effects that impede breathing and are accompanied by acute disorders of the circulatory and central nervous system functions.

Insufficient oxygen supply to the blood from the air or a violation of its utilization in the body itself causes oxygen starvation. Oxygen starvation of organs and tissues - oxygen deficiency, up to the complete cessation of oxygen supply to the body, is defined by the term "hypoxia".

Mechanical asphyxia usually occurs acutely and can end within 5-7 minutes. During this time, acute pathophysiological processes occur in the body, proceeding in stages that have their own characteristics in the clinical course and in pathomorphological manifestations.

**External and internal signs of death from asphyxia include:**

Fine-point hemorrhages in the connective tissues of the eyes (arise as a result of increased pressure in the superior vena cava system against the background of increased vascular permeability during hypoxia).

1. Cyanosis of the skin of the face, neck and mucous membranes (arises as a result of obstructed blood outflow to the right half of the heart).

2. Abundant, diffuse, confluent, intensely colored cadaveric spots (appear 30-60 minutes after death, they are blue-purple or purple-violet).

3. Involuntary defecation, urination (arises as a result of convulsive contraction of the hollow organs and relaxation of the sphincters). There may be release of the Christael plug in women.

4. Dark liquid blood in the heart and vessels - fibrinolinolysis (due to hypoxemia and acidosis). The dark color of the blood is due to the complete extraction of oxygen as a result of hypoxia during life.

5. Overflow of blood in the right half of the heart and vena cava (caused by congestion and hypertension in the pulmonary circulation).

6. Venous plethora of internal organs (associated with blood stagnation in the right half of the heart, as a result of which the outflow from the internal organs is difficult.

7. Subpleural and subepicardial hemorrhages (Tardieu spots), their origin is due to increased permeability of the capillary walls, a sharp drop in pressure in the capillary system during dyspnea, and the suction effect of the chest.

8. Anemia of the spleen, Sabinsky's sign (caused by the release of deposited blood from the spleen during asphyxia).

9. Alveolar emphysema of the lungs (according to histological data - foci of emphysematous swelling of the lungs).

10. Focal hemorrhages in the muscles of the neck, chest and back that occur during convulsions.

***The following signs characterize the effects of high temperatures during life:***

1. intact skin areas in the form of "crow's feet" in the area of ​​the corners of the eyes when moving apart the folds formed as a result of squinting;

2. absence of soot on the inner surface of the eyelids;

3. presence of soot on the walls of the sinus of the sphenoid bone, on the mucous membrane of the respiratory tract;

4. signs of thermal inhalation trauma in the form of burns of the mucous membrane of the mouth, pharynx, larynx and trachea, when inhaling hot air;

5. presence of carboxyhemoglobin in the blood (it is better to take from the closed central cavities of the corpse - the heart, large vessels, liver vessels), to obtain a more reliable forensic chemical result. During life, 60% of carboxyhemoglobin is formed. The stopper on the glass rod vial with blood should be hermetically sealed, and the study should be carried out as soon as possible;

6. presence of lifetime burns of the skin (with swelling of damaged tissues) and mucous membranes filled with fluid with a large amount of protein (4.24-5.52%) and leukocytes. Postmortem blisters are filled with air or a small amount of fluid, poor in protein (2.18-2.42%) and without signs of a lifetime reaction.

**Under microscopy, the intravital effect of high temperature is characterized by the presence of:**

- fat embolism of the vessels of the lungs and brain. To avoid erroneous diagnosis, when removing pieces of the lungs, do not crush, press or take them away from burning and charring;

- arterial thrombi in the vessels of the damaged areas;

- marginal location and emigration of leukocytes;

- small particles of coal in the blood vessels of the internal organs, Kupffer cells of the liver and in the cytoplasm of leukocytes located in the lumen of the vessel (provided that there is no charring of the internal organs);

- significant expression of dystrophic and necrotic changes in the nerve elements at the site of burn injury of the skin, muscles, larynx, trachea, bronchi and the absence of the same shifts in undamaged areas of tissue;

- in the pituitary gland (due to hypersecretion in the basophilic cells of the anterior lobe) - degranulation, vacuolization of protoplasm with the release of basophilic granular material into the lumen of blood vessels. Hypersecretion ceases by the end of the 2nd day.

**Inspection of the crime scene with general hypothermia**

The inspection usually includes open areas, unheated rooms in residential buildings (living quarters, attics, sheds, basements, etc.).

The following features and signs indicating the effect of cold on the human body during life are noted and described in the protocol part of the crime scene inspection:

- the corpse lies "huddled" in the pose of a "freezing person" (Ster's sign), "embryo" (limbs bent at the joints and brought to the chest and stomach, the chin is brought to the chest) or "balled" (arms and legs bent at the elbows, knees and brought to the chest and stomach, respectively). That is, a person instinctively tries to occupy a smaller volume of the body to conserve heat. With strong and severe alcohol intoxication, people can fall asleep in different positions and different places. Sober people, with severe physical exhaustion, fall face down, arms outstretched (in this position they die);

- a characteristic corpse bed with thawing, freezing of a superficial depression (possibly with freezing of clothes), conveying the external contours or outlines of a lying person;

- blue color and swelling of the skin, the presence of "frost erythema", expressed by swelling of the skin, outside of cadaveric spots (on the face, hands, feet, in the area of ​​​​the knee joints);

- "goose bumps", due to the contraction of the muscles that raise the hair on the skin;

- red-pink skin and cadaveric spots (due to the postmortem interaction of atmospheric oxygen and hemoglobin in cadaveric spots). Under positive temperatures, cadaveric spots acquire a blue-purple color (since at a positive temperature, surviving tissues have time to utilize blood oxygen in the postmortem period);

- the presence of frost on the eyelashes, icicles in the openings of the nose, mouth (the deceased was breathing in the cold), in the eye area - Raysky's sign. When transporting the body to the morgue, the signs may completely disappear;

- an empty, wrinkled and shortened scrotum with testicles pulled up to the entrance to the inguinal canals (Puparev's sign). The same author noted another sign - the density of the closed lips;

- not covered by the foreskin of a bright red color with swelling of the head of the penis and wrinkling of the body of the penis (Desyatov's sign);

- when warming the fingers with breath, the victim may observe self-harm from superficial abrasions and bite wounds of the nail phalanges to separation of the nail plates and parts of the phalanges (Ruban-Kruglyakov's sign); Fragments of bitten off pieces of skin and subcutaneous tissue can be found on clothing, lips, between the teeth in the vestibule of the mouth, stomach, esophagus of the corpse;

During external examination of the corpse, various abrasions (sometimes with hemorrhages in the underlying soft tissues) characteristic of a fall from one's own height onto a plane (on the face, the back of the hands, the areas of the elbow and knee joints) can be found. The specified localizations of abrasions can also form when a person crawls. The presence of abrasions on the scalp indicates repeated falls and an attempt to save oneself from the effects of the cold. Abrasions on the face and hands can also be self-inflicted by rubbing them by a person.

During internal examination of the corpse, the following signs indicate hypothermia:

1) Liquid bright red blood and red blood clots filling the left half of the heart and their presence in large vessels (Blusfeld-Dieberg-Raysky sign);

2) The bladder overflowing with urine, due to impaired innervation of the bladder, as a result of which the ability to contract is lost (Samson-Himmelstierne sign);

3) Fabricantov's sign - the presence of small bright red hemorrhages in the renal pelvis and the presence of diapedetic hemorrhages in other internal organs (due to increased permeability of the vascular walls); Hemorrhages under the mucous membrane of the pelvis are usually found in one kidney and are absent in the other;

4) "Vishnevsky spots" - the presence of a round or linear-tortuous brownish-red hemorrhage on the top or slope of the folded mucosa of the stomach or, less often, the duodenum. Hemorrhages are easily removed with the butt of a knife when stroking and occur in up to 75-90% of those who died from hypothermia. The color of the hemorrhages is due to the formation of acidic hematin, which appears when hydrochloric acid in the gastric juice interacts with hemoglobin in the blood. Microscopically, in the projection of the hemorrhages, there is necrosis of the mucous membrane. With rapid development of hypothermia, hemorrhages may not be observed (often when examining the corpses of children); Hemorrhages appear within 1-2 hours from the onset of cold exposure, and the bulk appears after 6-8 hours. In alcohol poisoning, hemorrhages are usually deep, affecting the submucosal layer of the stomach and are not removed with the butt of a knife. This feature should be taken into account in order to differentiate the cause of death from the effects of cold.

5) Pukhnerevich's sign - the stomach is empty, the folding is increased, there is glassy mucus on its walls (due to increased peristalsis of the stomach);

6) Lungs with a pinkish-red tint and carmine-red blood in the vessels;

7) Almost complete decrease or disappearance of glycogen from the liver, myocardium and skeletal muscles (associated with the rapid drop in body temperature to the terminal level) and glucose from the blood;

8) Hemorrhage in the brain and an increased amount of cerebrospinal fluid in the ventricles of the brain;

9) Red color of the mucous membrane of the larynx and trachea;

10) Wrinkled, contracted spleen with a wrinkled capsule with variegated parenchyma and hemorrhages on section;

11) Edema of the brain, its membranes, lungs;

12) Severe congestion of internal organs.

**Signs of electric shock:** the most characteristic changes occur on the skin at the points of entry and exit of the current, these are electrical marks, electrical burns, mechanical damage, lightning figures, edema, necrosis, metal impregnation may be observed.

Forensic diagnostics of death from poisoning should be based on a comprehensive analysis of investigative materials containing information about the poisoning, data from the inspection of the scene of the incident, the results of a forensic medical examination of the corpse and laboratory tests.

The most important significance for establishing poisoning with a certain poison is given to a forensic medical examination of the corpse. An external examination may reveal unusual coloration of cadaveric spots caused by the action of blood poisons, rapid and pronounced muscular rigor mortis (strychnine poisoning, cicutotoxin), unusual dilation of the pupils (atropine poisoning), constriction of the pupils (morphine poisoning, muscarine, etc.), ulcers or scabs around the mouth (in case of poisoning with caustic acids and alkalis), a grayish border on the gums (mercury poisoning, lead). When opening cavities and organs, a specific smell for some poisons (wine alcohol, phenol, bitter almonds from cyanide compounds, etc.) can be felt. For the diagnosis of poisoning with many poisons, the nature of changes in the mucous membrane of the oral cavity, esophagus, stomach, intestines, changes in the liver and kidneys are of significant importance. In cases of poisoning with a number of poisons (for example, sleeping pills), morphological manifestations in the internal organs are either very scanty or not expressed at all. In these cases, laboratory studies, primarily forensic chemical and forensic histological, are of the utmost importance.

**Questions for classroom knowledge assessment:**

1. Definition of the concept of asphyxia. Classification of types of mechanical asphyxia.

2. Periods and phases of the lifetime course of asphyxia. Characteristics of common signs of mechanical asphyxia.

3. Forensic diagnostics of hanging.

4. Forensic diagnostics of strangulation with a loop.

5. Forensic diagnostics of strangulation with hands.

6. Compression asphyxia, morphological signs.

7. Closure of the airways with soft objects. Forensic diagnostics.

8. Obstructive asphyxia: closure of the airways with loose bodies, gastric contents, blood.

9. Drowning, its types. Morphological signs, laboratory research methods.

10. Signs and determination of the duration of the corpse's stay in the water.

11. Forensic diagnostics of heatstroke and sunstroke.

12. Methods for determining the area and depth of burns, the severity of bodily injuries from burns.

13. List the causes of death due to exposure to high temperatures.

14. Signs of intravital and postmortem effects of high temperatures (flames) on the human body.

15. Pathogenesis and signs of death from general hypothermia. Signs of freezing of the corpse.

16. Conditions of action of electric current on the human body, "step electricity". Pathogenesis of death due to injury by technical electricity. Immediate causes of death.

17. Forensic evidence of death from injury by technical electricity.

18. Signs of death from exposure to atmospheric electricity.

19. Pathomorphological signs of death from exposure to low barometric pressure.

20. Signs of death from exposure to high barometric pressure.

21. Definition of the concepts of poison and intoxication. Conditions of action of poisons. Classification of poisons and intoxications.

22. Features of the crime scene inspection in cases of suspected poisoning.

23. Features of forensic medical examination of corpses of persons who died from poisoning.

24. Forensic medical diagnostics of poisoning with caustic poisons (acids, alkalis).

25. Forensic medical diagnostics of poisoning with mercury, arsenic and their compounds.

26. Forensic medical diagnostics of poisoning with poisons that affect the blood.

27. Forensic medical diagnostics of poisoning with cyanide compounds.

28. Forensic medical diagnostics of poisoning with atropine, morphine, strychnine, sleeping pills.

29. Forensic medical diagnostics of poisoning with ethyl alcohol.

30. Forensic diagnostics of poisoning with alcohol substitutes and technical liquids (methyl alcohol, ethylene glycol, tetraethyl lead)

31. Forensic diagnostics of poisoning with pesticides.

32. Classification of food poisoning. Forensic diagnostics of mushroom poisoning.

33. Interpretation of positive and negative results of forensic chemical analysis.

**PRACTICAL PART:**

1. Write down expert conclusions on mechanical asphyxia due to compression of the neck organs during hanging. List morphological features that allow you to make a conclusion about this cause of death.

2. Diagnose changes in micropreparations (vital and postmortem burns, soot in the lungs, vitality and postmortem strangulation groove, electrical marks).

**Tasks and questions to monitor the assimilation of the topic**

Https://do2.vsmu.by: LMS Forensic Medicine: materials for students' guided independent work: test tasks on topic No. 6.

**Literature**

Main:

1. Осмотр трупа на месте его обнаружения: рук. для врачей / Э.П. Александров [и др.]; под ред. А. А. Матышева. - Ленинград: Медицина, Ленинградское отделение, 1989. - 262, [2] с.: ил. - Библиогр.: с. 261-263.

2. Руководство по судебно-медицинской экспертизе отравлений / Р.В. Бережной [и др.]; под ред. Р.В. Бережнова [и др.]. - Москва: Медицина, 1980. - 413, [2] с.: ил. - Библиогр.: с. 409-414.

3. Судебная медицина: учеб. для студентов мед. ин-тов / под ред. В.Н. Крюкова. - 4-е изд., перераб. и доп. - Москва: Медицина, 1998. - 464 с.

4. Судебная медицина: атлас: учеб. пособие для студентов мед. вузов А.А. Солохин [и др.]; под ред. А.А. Солохина. - Москва: Медицина, 1998. - 512 с.: ил. - (Учебная литература. Для студентов медицинских вузов).

5. Яблонский, М.Ф. Курс лекций по судебной медицине: [учеб. пособие] / М.Ф. Яблонский; М-во здравоохранения Республики Беларусь, УО "Витебский гос. мед. ун-т". - Витебск: [ВГМУ], 2005. - 301 с. - Библиогр.: с. 297-299.

6. Пиголкин, Ю.И. Судебная медицина: учебник для студентов мед. вузов / Ю.И. Пиголкин, В.Л. Попов. - Москва: Медицина, 2003. - 493, [1] с.: ил. - (Учебная литература для студентов медицинских вузов).

7. Атлас по судебной медицине / под ред.: Ю.И. Пиголкина, И.Н. Богомоловой. - Москва: Медицинское информационное агентство, 2006. -312 с: ил. - Библиогр.: с. 309-310.

8. Яблонскнй, М.Ф. Курс лекций по судебной медицине [Электронный ресурс]: учеб. пособие / М.Ф. Яблонский; Витебский гос. мед. ун-т. - Электрон, текстовые дан. (22,3 Мб). - Витебск: ВГМУ, 2007. - 1 электрон, опт. диск (CD-ROM).

9. Пиголкин, Ю.И. Судебная медицина: учебник: для студентов учреждений высш. образования, обучающихся по специальностям 060101.65 "Лечебное дело", 060104.65 "Медико-профилактическое дело" и 060105.65 "Стоматология" / Ю. И. Пиголкин, В. Л. Попов ; М-во; здравоохранения Рос. Федерации, ГБОУ высш. проф. образования "Первый Московский гос. мед. ун-т им. И. М. Сеченова". - Ростов-на-Дону: Феникс, 2015. - 551, [1] с, [8] л. ил. - (Библиотека ПМГМУ им. И. М. Сеченова).

10. Судебная медицина: учеб. для студентов вузов, обучающихся по специальности 030502 "Судебная экспертиза" / В.Н. Крюков [и др.]; под общ. ред. В.Н. Крюкова. - 2-е изд., перераб. и доп. - Москва : НОРМА: ИНФРА-М, 2015. - 431 с.: ил.

11. Судебная медицина и судебно-медицинская экспертиза: нац. рук. / Всерос. о-во судеб, медиков, Ассоц. мед. обществ по качеству ; гл. ред. Ю.И. Пиголкин. - Москва: ГЭОТАР-Медиа, 2014. - 727 с.: ил. - Библиогр.: с. 717-721.

12. Денисенко, А.Г. Судебно-медицинская экспертиза трупа: учеб.-метод. пособие / А.Г. Денисенко; М-во здравоохранения Республики Беларусь, Витебский гос. мед. ун**-**т,Каф. патол. анатомии с курсом судеб, медицины. - Витебск: [ВГМУ], 2017. - 26 с. - Библиогр.: с. 25.

13. Яблонский, М.Ф. Судебно-медицинская экспертиза повреждений, вызванных действием электричества: учеб.-метод. пособие / М.Ф. Яблонский, А.А. Буйнов; М-во здравоохранения Республики Беларусь, УО "Витебский гос. ордена Дружбы народов мед. ун-т", Каф. патол. анатомии с курсом судеб, медицины. - Витебск: [ВГМУ], 2017. - 26 с.: ил. - Библиогр.: с. 25.

14. Денисенко, А.Г. Судебно-медицинская экспертиза вещественных доказательств: учеб.-метод. пособие / А.Г. Денисенко; М-во здравоохранения Республики Беларусь, Витебский гос. мед. ун-т, Каф. патол. анатомии с курсом судеб, медицины. - Витебск: [ВГМУ], 2017. - 23 с.: ил. - Библиогр.: с. 22.

15. Судебная медицина: учебник / Ю.И. Пиголкин [и др.]; под ред. Ю.И. Пиголкина. - 3-е изд., перераб. и доп. - Москва: ГЭОТАР-Медиа, 2015. - 496 с, [16] л. цв. ил.: ил.

Additional:

1. Яблонский, М.Ф. Учебно-контрольные тесты по судебной медицине: [учеб. пособие] / М.Ф. Яблонский, А.М. Тетюев, А.А. Буйнов; М-во здравоохранения Республики Беларусь, УО "Витебскийгос. мед. ун-т". - Витебск: [ВГМУ], 2011. - 159, [1] с.

2. Задачи и тестовые задания по судебной медицине: учеб. пособие для вузов / Ю.И. Пиголкин [и др.]; под ред. Ю.И. Пиголкина. - Москва: ГЭОТАР-МЕД, 2004. - 621, [1] с. - (XXI век).

3. Денисенко, А.Г. Расстройство здоровья и смерть от действия крайних температур: метод, рекомендации / А.Г. Денисенко; М-во здравоохранения Республики Беларусь, Витебский гос. мед. ун-т, Каф. патол. анатомии с курсом судеб, медицины. - Витебск: [ВГМУ], 2018. - 32 с.: ил. -Библиогр.: с. 30-31.

4. Уголовно-процессуальный кодекс Республики Беларусь: с изм. и доп. по состоянию на 04.09.2015. – Минск: Нац. центр правовой информ. Республики Беларусь, 2015. – 448 с.